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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/566,733

02/02/2006

Akira Maenishi

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05/11/2011

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EXAMINER

AKRAM, IMRAN

ART UNIT

PAPER NUMBER

1723

MAIL DATE

DELIVERY MODE

05/11/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/566,733	Applicant(s) MAENISHI ET AL.	
	Examiner IMRAN AKRAM	Art Unit 1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 9-15 and 18-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 16 and 17 is/are rejected.
- 7) ☒ Claim(s) 1-8, 16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 3/18/11 have been fully considered but they are not persuasive. The Komiya reference still anticipates the claims.
2. In response to applicant's argument that "the Komiya reformer is not configured such that the water inlet and the feed gas inlet inject water and feed gas through their respective inlets so as to contact the tubular water evaporator at a location separate from one another," a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. While the amended clause contains the language "configured to," the water and gas inlets of Komiya are configured to inject the water and feed gas to contact the water evaporator at separate locations from one another, as well. Since the reformer of Komiya is cylindrical, the evaporator is contacted at multiple locations around the top of the water evaporator. And while the water and gas share a channel, the device can be used in a manner in which the water and gas are fed separately and thereby contacting the water evaporator separately. Applicant is advised to more clearly state the locations of the water and feed gas contacts (i.e. locations along the water evaporator's axial length). See also objection below.

Claim Objections

3. Claims 1-8, 16, and 17 are objected to because of the following informalities:
Claim 1 includes the limitation "the water inlet and the feed gas inlet are configured to inject the water and the feed gas to as to contact said tubular water evaporator at a location separate from one another." This is confusing, however, as by stating there is only "a location," it is unclear how the location is separate from itself. Applicant is suggested to claim "locations separate from one another" or the like. Claims 2-8, 16, and 17 depend on claim 1. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-8, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Komiya (US 2002/0042035 A1).

6. Regarding claim 1, Komiya discloses a reformer **2** that has a cylindrical or tubular shape (paragraph 11) with a first wall element **61** and a second wall element **62** disposed coaxially outside the first wall element (see figure 1); a tubular space **51** exists between the two wall elements and is provided with a evaporator portion **51a** and a reforming catalyst body **8** in axial relation with one another (see figure 1); a water inlet at the second wall element **62** (see gap at the top right portion of wall **62**); and a feed

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gas inlet **26** at the second wall element **62** (see gap at top left portion of wall **62**). The reformer generates hydrogen with steam and feed gas (paragraph 4). The reformer causes the feed gas and steam to flow from the water evaporator to the reforming catalyst (paragraph 12). While the evaporator portion **51a** is not called an evaporator but a pre-heat layer instead, water is transmitted to the pre-heat layer **51a** via the heating channel **48** and is converted to steam in the process (paragraph 88). Where and when evaporation of the water occurs is process condition–dependent. The water and feed gas inlets are configured to inject the water and feed gas at separate locations of the evaporator along the rim of its top since the device is cylindrical (paragraph 64).

7. Regarding claim 2, Komiya discloses that the reformed gas is caused to flow from an axial end of said reforming catalyst body (paragraph 70).

8. Regarding claim 3, Komiya discloses that said water evaporator is disposed under said reforming catalyst body (see figure 1) as this is simply a matter of orientation. The reforming would be fully capable of operating upside-down from that depicted in figure 1 and the apparatus components and positioning would be the same.

9. Regarding claim 4, Komiya discloses that said first and second tubular wall elements are each constructed of a cylindrical seamless pipe (see figure 1).

10. Regarding claim 5, Komiya discloses a burner **18** configured to combust a combustible gas to generate a combustion gas (paragraph 61); and a third tubular wall element **14** disposed inward of said first tubular wall element **61** and coaxially with said first tubular wall element **61** (see figure 1), wherein the combustion gas is caused to

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flow in a tubular space which is a combustion gas passage **80** formed between said first and third tubular wall elements (see figure 1 and paragraph 61).

11. Regarding claim 6, Komiya discloses that said burner is oriented to cause a flame to be emitted upward from said burner (see figure 1). Again, this is a matter of orientation, and the apparatus can be turned around.

12. Regarding claim 7, Komiya discloses that said burner is disposed in an internal space of said third tubular wall element **14** (see figure 1), said hydrogen generator further comprising: a first lid element **71** disposed with a gap between said first lid element and an upper end of said third tubular wall element **14** so as to close an upper end of said first tubular wall element **61**, wherein the combustion gas generated in said burner is caused to flow from an interior of said third tubular wall element into the combustion gas passage **80** through the gap (see figure 1).

13. Regarding claim 8, Komiya discloses that the combustion gas flows along the first wall element via passage **80** on its way to a break formed in the first wall element **61** to combustion outlet **24**. Whether this direction is considered “downwards” is, too, a matter of orientation.

14. Regarding claim 16, Komiya discloses a tubular cover **63** that is configured to cover said second tubular wall element **62** and forms a double-walled pipe along with said second tubular wall element **63** (see figure 1), wherein the reformed gas flowing out from said reforming catalyst body (paragraph 70) is caused to flow a tubular space **50** between said second tubular wall element **62** and said tubular cover **63** (paragraph 70).

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15. Regarding claim 17, Komiya discloses a rod element **81** disposed at a position of the reformed gas passage to extend in a circumferential direction of said second tubular wall element **62** (paragraph 72), and the rod element is sandwiched between said second tubular wall element **62** and said tubular cover **63** (see figure 1). The rod is considered flexible as it is wound around the tubular element.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IMRAN AKRAM whose telephone number is (571)270-3241. The examiner can normally be reached on 10-7 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Imran Akram/
Examiner, Art Unit 1723